

U.S. Patent Application Serial No. 10/577,322

Amendment filed February 11, 2009

Reply to OA dated September 5, 2008

### **REMARKS**

Claims 1-26 are pending in this application. Claim 26 is canceled without prejudice or disclaimer, claims 1-14 and 25 are amended, and claims 27 and 28 are newly added herein. Upon entry of this amendment, claims 1-25, 27 and 28 will be pending. The specification is also amended herein. Entry of this amendment and reconsideration of the rejections are respectfully requested.

No new matter has been introduced by this Amendment. Support for the amendments to the claims is as follows:

In claim 1, "oxide" has been amended to --oxide further comprising alkali metals dopant--. Support can be found on page 5, lines 27 to 30, in the specification.

In claim 2 "oxide" has been amended to --  $\text{Nd}_2\text{CuO}_4$  or  $\text{Y}_2\text{CuO}_4$ --. Support for this amendment may found on page 7, liens 3 to 5, in the English specification.

The amendment to claim 3 is supported by original claim 4. Claim 4 has been amended to depend only from claim 2.

Support for new claims 27 and 28 may be found on page 5, lines 10 to 14 and lines 27-31, and on page 6, line 13, in the specification.

**The disclosure is objected to.** (Office action p. 2)

The Examiner states that all occurrences of "alkali-earth" should be rewritten as "alkaline-earth."

The objection is overcome by the amendment to the claims. All occurrences of "alkali-earth" in the specification have been amended to use the standard term --alkaline earth--. It will be

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understood that the original recitation of "alkali-earth" represented a minor mistranslation of the original Japanese specification, and that the term "alkaline earth" was clearly intended. For example, on page 5, line 25, the specification explains that these metals "include Ca, Sr, Ba, etc.," clearly referring to the alkaline earth metals.

In addition, all occurrences of "alkali-earth" in the claims have been amended to --alkaline earth--.

**Claims 1, 14-24 are rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the enablement requirement.** (Office action p. 2)

The rejection is respectfully traversed, and reconsideration is requested.

Applicant submits, first of all, that the rejection is improper.

In this rejection, the Examiner refers to U.S. Patent No. 7,016,094 and U.S. Publ. No. 2006/0261329.

The Examiner states that US '094: "teaches elements having the same structure as that claimed to not exhibit electroluminescence in column 5, lines 30-36. Thus it appears a third of the embodiments are not functional and thus are not enabled."

The Examiner's argument appears to be that the preamble of the claims, i.e., "an electroluminescent material," is inappropriate because the claimed materials are not, in fact, electroluminescent. In this regard, it should be noted, first of all, that the preamble of the claims generally recites a utility for the invention, and is generally not considered limiting (see MPEP 2111.02).

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With regard to the general issue of enablement, Applicant submits that the Examiner has **not** stated that the specification does not teach how to make or use the invention. Applicant submits that the specification clearly does teach how to make and use the invention. The Examiner's argument appears to be that the invention would not work for its claimed utility, but this would only be an argument for a "utility" rejection under 35 U.S.C. 101. Applicant submits that such a potential rejection would be improper, as the utility for the present invention is clearly stated in the specification.

Moreover, with regard to the specific issue of the teachings of the references raised by the Examiner, the cited lines of US '094 at column 5, lines 30-36, only appear to state that "the electro-optic medium is a perovskite material that changes the optical properties when an appropriate electric field or potential is applied ...." These lines of the reference do not appear to discuss electroluminescent properties **at all**.

With regard to Muccini et al. '329, the Examiner refers to page 3, lines 22-24. It is not clear which portion of the reference is being cited, but Applicant can find no disclosure that "undoped  $\text{YAlO}_3$  ... is not electroluminescent."

Moreover, even if there were a prior art reference where some worker had failed to observe electroluminescent properties for a particular substance, that would not lead to a conclusion that the substance of the present invention does not have electroluminescent properties.

Therefore, the present rejection is improper, and reconsideration of the rejection is requested.

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Secondly, although this is not a prior art rejection, Applicant here perfects the claim for foreign priority of priority of JP 2003-370984 (filed October 30, 2003) in the present application, by providing the attached verified translation of this priority document. Applicant notes that Awaya et al. '094 is prior art under 35 U.S.C. 102(e) as of its filing date of January 12, 2004. Muccini '329 is based on a PCT application filed on March 24, 2004, and is apparently prior art under 35 U.S.C. 102(e) as of that date. Both of these documents are overcome as prior art by the perfection of the claim for foreign priority in this application.

**Claims 1 and 2 are rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 3,226,183.** (Office action p. 3)

The rejection of claim 1 is overcome by the amendment to claim 1, reciting: "the oxide further comprising alkali metals dopant." U.S. Patent No. 3,226,183 (US '183) discloses a monocrystalline manganese oxide represented by Formula:  $TMnO_3$ , wherein T represents yttrium, lanthanum, cerium or lutecium, (Column 1, lines 11 to 16). US '183 teaches that the manganese oxide may have a crystal structure similar to perovskites (Column 1, line 25). However, US '183 nowhere discloses that the manganese oxide further comprises an alkali metal as a dopant.

The rejection of claim 2 is overcome by the amendment to claim 2, limiting the material to be " $Nd_2CuO_4$  or  $Y_2CuO_4$  having a perovskite-type crystal structure."

**Claims 1, 4-9, 12, 13 and 26 are rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 3,974,108.** (Office action p. 4)

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The rejection of claim 1 is overcome by the amendment to claim 1, reciting: "the oxide further comprising alkali metals dopant." U.S. Patent No. 3,974,108 (US '108) discloses a lanthanum oxide represented by Formula:  $(La_{1-x}A_x)CrO_3$ , wherein A is Sr, Ca or Mg, and x is 0-0.3, (column 1, lines 39-44). However, US '108 merely discloses a lanthanum oxide containing an alkaline earth metal or Mg as a dopant, and is silent about the addition of an alkali metal as a dopant.

The rejection of claim 2 is overcome by the amendment to claim 2, limiting the material to be " $Nd_2CuO_4$  or  $Y_2CuO_4$  having a perovskite-type crystal structure."

**Claims 2, 4-6, 8-10, 12, 13 and 26 are rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,057,492. (Office action p. 4)**

The rejection is overcome by the amendments to claims 1 and 2. U.S. Patent No. 5,057,492 (US '492) merely discloses  $La_{1.9}A_{0.1}CuO_4$  (wherein A is Ba or Sr) to which  $La_2CuO_4$  and an alkaline earth metal are doped. US '492 is silent about  $Nd_2CuO_4$  and  $Y_2CuO_4$ .

The electroluminescent material defined by the amended claim 2 comprises  $Nd_2CuO_4$  and  $Y_2CuO_4$ .  $Nd_2CuO_4$  and  $Y_2CuO_4$  are totally different from the lanthanum oxide disclosed in US '492, and therefore, amended claim 2 is not anticipated by US '492. Amended claim 1 is also not anticipated by US '492, and therefore, dependent claims 4-6, 8-10, 12, 13 and 26 are not anticipated by this reference.

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**Claims 3, 5 and 25 are rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,851,507, 5,096,880 or 5,106,828. (Office action p. 4)**

Regarding claim 3, U.S. Patent No. 5,096,880 (US '880) and U.S. Patent No. 5,106,828 (US '828) discloses  $\text{YBa}_2\text{Cu}_3\text{O}_6$  having a perovskite structure (Column 6, lines 32 to 45 of US '880 and Column 6, line 43, of US '828). However, neither US '880 nor US '828 discloses that  $\text{YBa}_2\text{Cu}_3\text{O}_6$  further comprises at least one dopant selected from the group consisting of alkaline earth metals, Mg, alkali metals and transition metals.

The Examiner asserts that U.S. Patent No. 5,851,507 (US '507) discloses  $\text{YBa}_2\text{Cu}_3\text{O}_6$ , but US '507 does not disclose  $\text{YBa}_2\text{Cu}_3\text{O}_6$ .

The oxide of the amended claim 3 comprises at least one dopant selected from the group consisting of alkaline earth metals, Mg, alkali metals and transition metals in addition to  $\text{RZ}_2\text{Cu}_3\text{Q}_6$  (wherein R is a rare-earth element, and Z is an alkaline earth metal).

The amended claim 3 incorporates the feature of claim 4, which is not rejected based on the disclosures of US '880, US '828 and US '507. Therefore, the subject matter of the amended claim 3 is not anticipated by and, further, is not obvious from the cited documents.

**Claims 2, 4-6, 8-10, 12, 13 and 26 are rejected under 35 U.S.C. §102(a) as being anticipated by the article by Kim et al. (Office action p. 5)**

The rejection over Kim is overcome by the perfection of the claim for foreign priority in this application. As noted above, a verified translation of the priority document JP 2003-370984 (filed

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October 30, 2003) in the present application is attached. The Kim (2003) article was published on November 25, 2003, and is antedated by the claim for foreign priority.

**Claims 1, 4-9, 12, 13 and 26 are rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 7,016,094. (Office action p. 5)**

The rejection over Awaya is overcome by the perfection of the claim for foreign priority in this application. As noted above, a verified translation of the priority document JP 2003-370984 (filed October 30, 2003) in the present application is attached. The Awaya reference is a 35 U.S.C. 102(e) reference as of its filing date of January 12, 2004, and is antedated by the claim for foreign priority.

**Claims 1, 4-6, 8-10, 12, 13 and 26 are rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 3,550,033 or JP 07-286171. (Office action p. 5)**

Regarding claim 1, U.S. Patent No. 3,550,033 (US '033) discloses a crystalline oxide represented by Formula:  $GdAl_{1-x}Cr_xO_3$ , which contains Cr as dopant, wherein x is 0.0001 to 0.01 (Column 1, lines 63 to 64). However, the crystalline oxide of US '033 contains not an alkali metal, but Cr, as a dopant.

Regarding claim 1, JP 07-286171 (JP '171) discloses a rare-earth aluminum oxide represented by Formula:  $RAIO_3:xCr$  having a perovskite-type crystal structure, which contains Cr as a dopant, wherein R is Y, La or Gd, and x is 0.0005-0.008 (paragraph [0012]). However, the dopant of the crystalline oxide of JP '171 is not an alkali metal but Cr.

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Claims 2 and 3 are also not anticipated by US '033 or JP '171, and claims 4-6, 8-10, 12, 13 and 26 are also not anticipated by these references.

**Claims 1, 4-6, 8-10, 12 and 26 are rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 3,725,811.** (Office action p. 6)

Regarding claim 1, U.S. Patent No. 3,725,811 (US '811) discloses a laser crystal comprising  $\text{LaAlO}_3$ ,  $\text{GdAlO}_3$  or like host crystal and 0.0005-1% of at least one transition metal selected from the group consisting of Ti, V, Cr, Mn, Fe, Co and Ni (claim 1). However, the dopant used in the laser crystal of US '811 is not an alkali metal but a transition metal.

Claims 2 and 3 are also not anticipated by US '811, and claims 4-6, 8-10, 12 and 26 are not anticipated by this reference.

**Claims 1, 4-6, 8-10, 12 and 26 are rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 3,956,170.** (Office action p. 6)

Regarding claim 1, U.S. Patent No. 3,956,170 (US '170) discloses Cr-doped  $\text{EuAlO}_3$  and M-doped  $\text{YAl}_{1-y}\text{M}_y\text{O}_3$  (M is a transition metal of atomic numbers 21 through 30). (Column 3, lines 23 to 24, Column 4, lines 11 to 17). However, the oxide disclosed in US '170 is not doped with an alkali metal, but with Cr or a like transition metal of atomic numbers 21 through 30.

Claims 2 and 3 are also not anticipated by US '170, and claims 4-6, 8-10, 12 and 26 are not anticipated by this reference.

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**Claims 1, 4-6, 8-10, 12, 13 and 26 are rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 4,988,402. (Office action p. 7)**

Regarding claim 1, U.S. Patent No. 4,988,402 (US '402) discloses  $\text{YAlO}_3$  comprising 0.02-1 at % Ti (claims 1 and 5). However, the dopant used in US '402 is not an alkali metal but Ti.

Claims 2 and 3 are also not anticipated by US '402, and claims 4-6, 8-10, 13 and 26 are not anticipated by this reference.

**Claims 1, 4-9, 12 and 26 are rejected under 35 U.S.C. §102(b) as being anticipated by JP 2002-129154. (Office action p. 7)**

Regarding claim 1, JP 2002-129154 (JP '154) discloses  $\text{YAlO}_3$  that contains Ca (paragraphs [0005] and [0025]). However, instead of an alkali metal, the oxide of JP '154 contains Ti or Ca as a dopant. The oxide of the amended claim 1 further comprises an alkali metals a dopant.

Claims 2 and 3 are also not anticipated by JP '154, and claims 4-9, 12 and 26 are not anticipated by this reference.

**Claims 10 and 11 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 3,974,108. (Office action p. 8)**

**Claim 10 is rejected under 35 U.S.C. §103(a) as being unpatentable over the article by Kim et al. (Office action p. 8)**

**Claims 10 and 11 are rejected under 35 U.S.C. §103(a) as being unpatentable over JP 2002-129154. (Office action p. 9)**

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**Claims 1, 4, 5, 9, 13 and 26 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 3,725,811. (Office action p. 9)**

**Claims 1, 4, 5, 9 and 13 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 3,956,170. (Office action p. 10)**

As noted above, the article by Kim et al. (2003) is overcome as prior art by the perfection of the claim for foreign priority in the present application. Applicants have also argued above that claims 1-3 are not anticipated by US '108, JP '154, US '811 and US '170, and Applicant's further argue that there is no suggestion in these references for the limitations of claims 1-3. The present claims are therefore not obvious over US '108, JP '154, US '811 and US '170, taken separately or in combination.

**Regarding new claims 27 and 28.**

Claim 27 requires at least one dopant selected from the group consisting of alkaline earth metals, Mg and alkali metals to a manganese oxide. US '183 nowhere discloses the addition of such a dopant. In US '811, US '170, US '402, and JP '154, a transition metal or Ca is used as a dopant.

The oxides disclosed in US '108, US '033, and JP '171 have Cr in the portion of M in the General Formula  $\text{RMO}_3$  of claim 27. M cannot be Cr in claim 27.

Accordingly, the electroluminescent material defined in the newly added claim 27 is not anticipated by and not obvious over the cited references.

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Claim 28 requires at least one dopant selected from the group consisting of alkaline earth metals, Mg, alkali metals, and transition metals. US '183 nowhere discloses the addition of at least one dopant selected from the group consisting of alkaline earth metals, Mg and alkali metals and transition metals to a manganese oxide.

The oxides disclosed in US '108, US '033, and JP '171 have Cr in the position of M in General Formula  $\text{RMO}_3$  of claim 28 of the present application. The oxides disclosed in US '811, US '170, US '402, and JP '154 have Al in the position of M in General Formula  $\text{RMO}_3$  defined in claim 28. M can only be Mn in claim 28.

Accordingly, the electroluminescent material defined in the newly added claim 28 is not anticipated by and is not obvious over the teachings of the cited references.

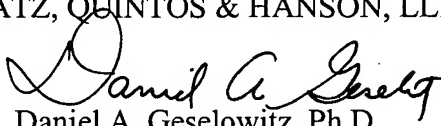
If, for any reason, it is felt that this application is not now in condition for allowance, the Examiner is requested to contact the applicants' undersigned agent at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

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In the event that this paper is not timely filed, the applicants respectfully petition for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 01-2340.

Respectfully submitted,

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PATENT & TRADEMARK OFFICE

Enclosures: Petition for Extension of Time  
Amendment Fee Transmittal  
Verified English Translation of Priority Document No. JP 2003-370984

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